EXHIBIT B

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Bruce CARLIN	)	Confirmation No.: 4479
Serial No.: 09/081,841	)	Group Art Unit: 2179
Filed: February 20, 2002	)	Examiner: Theribault, S.
For: NETWORK-LINKED INTERACTIVE THREE-DIMENSIONAL COMPOSITION AND DISPLAY OF SALEABLE OBJECTS IN SITU IN VIEWER-SELECTED SCENES FOR PURPOSES OF PROMOTION AND PROCUREMENT, AND GENERATION OF OBJECT ADVERTISEMENTS	)	
Atty's Docket No.: CAR 0002CIP	)	

San Diego, California
August 28, 2006

AMENDMENT UNDER 37 C.F.R. §116

Box Amendment after Final - Patents
Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the second and final Office Action mailed April 27, 2006, the time for response to which being extended by the accompanying Petition, please enter the present amendment under Rule 116, and consider the following remarks, as regard the above-identified patent application:

Please amend the application as follows:

In the Claims:

Please amend claim 20.

Copies of all claims in amended, and in plain text, form are attached.

REMARKS

Claims 20-41 are in the application. Entrance of the present amendment under Rule 116, and reconsideration, are respectfully requested.

1. Rejections Under 35 U.S.C. §112, Second Paragraph

Claims 20-22 are rejected under 35 U.S.C. §112, Second Paragraph, for indefiniteness in the language "or equivalently" appearing twice in claim 20.

The language is deleted by amendment to claim 20.

The terms (1a) through (1c) of claim 20 are, although connected by the word "or", not true alternatives, but merely alternative means of describing and expressing the information that represents the background of the scene. A practitioner of the digital imaging arts will recognize that all the terms (1a) though (1c) are not true alternatives, but merely different words and phrases all of which are descriptive of the same basic information, to wit: information on the background of the scene.

2. Rejection Under 35 U.S.C. §103

Claims 20-41 are rejected under 35 U.S.C. §103(a) as being anticipated by the reference art patent no. 6,727,925 [SIC] to Smith, et al. [SIC] in view of the prior art paper of Technicon Inc.[hereinafter "Technicon"].

The U.S. patent no. 6,727,925 referenced at section 5, line 2, of the Office Action is to Bourdelais and not to Smith, et al.; which patent was the basis of a previous rejection. It is presumed that this is a typographical error, and that the Examiner means U.S. patent no, 6,052,669 to Smith, et al. [hereinafter "Smith, et al."], newly made of reference.

2.1 Discussion of The Cited Art

Although Applicant full well realizes he must distinguish his invention as claimed -- and does so in section 2.3 hereinafter -- Applicant begs the indulgence of the Examiner for the following four paragraphs of this section 2.1 reviewing the showings of (1) Smith, et al., and of (2) Technicon.

The patent to Smith, assigned to a major manufacturer of office equipments, concerns the graphically-assisted selection of office furniture components, and the validation of the correct interoperability of the components so selected. Graphics renderings are minimal; mere "stick figures" (although 3D) are generated and presented.

The Technicon and SolidWorks references appear to be to what are commonly referred to as a Web3D system. In this system small models are downloaded to the client and rendered in real-time on the client.

These systems are very, very different from the method and system described and claimed by Applicant, where photorealistic 3D rendering is done on a server from scene and object inputs made from a client computer.

The Examiner is credited, however, in locating having located a reference in Smith that goes beyond the previously cited system and patent of Bordelais that relied entirely on 2D images, and that had nothing to do with 3D models.

2.2 Discussion of The Relation of the Present Application to the Predecessor Application Now issued as a U.S. Patent

Although Applicant again states that he full well realizes that he must distinguish his invention as claimed -- and does so in section 2.3 hereinafter -- since the present Examiner has

cited new art (1) which may or may not be found relevant to the (now realized) issuance of a patent on the predecessor application, and +(2) which is in any case now cited by the Examiner as relevant to passage to issuance of the claims of the present application, Applicant solicits the indulgence of the Examiner for anther four paragraphs explaining of the purpose(s), and content, of the present, Continuation-in-Part patent application. In this short explanation Applicant begins to contrast his invention with the showings of Smith, and of Technicon.

The present application is directed to extending the concepts taught in the predecessor application. Two key concepts are newly taught and claimed.

The first concept is that the scene data need not be communicated from the client to the server in 2D (plan view) form, and translated to 3D using object based-rules (chairs sit on the floor). Instead, small (light i.e. low polygon count) "proxy" or "stand-in" models and textures can be placed in a 3D scene on the client and rendered in real time for the purpose of specifying the scene, and previewing the final rendering. Then this information is transmitted to the server, where the big high-resolution models and textures are substituted, and where a high-resolution 2D or 3D image is rendered entirely from 3D elements residing on the server, with the images is returned to the client for viewing.

In contrast, both the reference art of (1) Smith and (2) the apparent Web3D application as is the subject of the Technicon reference, serve to render a final image on the **client** for display to the user -- not for the purpose of specifying a scene to a ray-tracing rendering system on a **remote server**! Web3D

systems download small models from the server for rendering on the client. And, as will be argued, Smith makes no definitive statement (including at column 5, lines 29-67) as to exactly where any image should be rendered.

Conversely, Applicant teaches that the small models may be resident on the **client** - and not only the server -- at the start of the session. Applicant system uses proxy or stand-in models **on the client.** Moreover, Applicant's system renders any stand-ins in real time on the client for the purpose of previewing the final rendering, and of specifying the scene to the server.

2.3 Distinction of Applicant's Invention as Claimed over the Reference art of Smith combined with Technicon

In rejecting Applicant's claim 1 the Examiner finds at page 4, paragraph 2, et seq., that Smith shows at column 5, lines 29-35 each of Applicant's claimed "receiving at another, second, computer...; deriving in the second computer....; and utilizing in the second computer the background scene information... to generate... a perspective view image of the selected object...."

In actual fact, all that Smith states at column 5, line 29, et seq., is that "in other embodiments the [single] computer system 100 is connectable to a network computer so that some or all of its functions may be offloaded to other computers on the network".

This mere suggestion fails to teach or suggest the **specific** partitionment of functionality that is claimed by Applicant.

Neither does the system of Smith "utilize[e]... in... [any] computer the (1)-(2) background scene information and the identified high-quality object and its parameters and any (4) derived high-quality 3D background scene model to generate and

render in consideration of (5) a camera position and orientation, (6) a perspective view image of the selected object in the 3D scene". (claim 20) Not only is there no camera position nor orientation, but such limited image rendering as is done in Smith - which, it must be remembered, is directed to supporting component ordering and configuration control - is done by interaction with the user as described at column 9, line 56, et seq. (Applicant thought to potentially add the word "automatically" before "generate and render" in the previously quoted language of his claim 20, but believes that the distinction of the function claimed over Smith is clear enough.)

Moreover, Applicant's claimed "generating and rendering" (transpiring in a second, powerful, network-connected computer) is to the end "wherein the object, having an associated geometry, is rendered with specified parameters in proper (1) scale, (2) position, and (3) rotation within the perspective view image". (claim 20) This supports generation of a "photorealistic image" -- a copy of an example of which photorealistic image generated by Applicant's system was supplied the Examiner of the predecessor application, and which may be retrieved and inspected if desired by the Examiner of the present C-I-P application.

Applicant questions by his reference to, among other figures and text, Figures 11 and 14 of Smith whether objects - here (1) tables and (2) chairs - that **are** likely corrected **positioned** in Smith are also - even with involvement of a user operator - susceptible of being rendered with exact appropriate "**proper**" (1) "scale" and (3) "rotation". Instead (1) it looks like an object - a table or a chair - in Smith in **nearly proper** rotation is simply selected so as to be placed in the scene, and, further, (2) since the scene (see, for example, Figure 8) is fairly

unitary and without any great depth of field, the selected object may **not** have to be, and may not be, "scaled" at all. In other words, Smith renders an image that is "good enough" to select and configure office furniture, but is a far pace from the photorealistic images that Applicant claims to generate.

n any case, and as has already been stated, any object image generating and rendering in Smith, or in the reference of Tchnicon, is **not** to a "camera position and orientation", as is absolutely necessary if rendering is to be "with the same proper perspective that a conventional photo of the scene would exhibit… if captured by a camera". (claim 20).

In summary, there are images and there are images. Photorealistic image rendering (images having quality beyond those of Smith, or the reference art of Technicon) is known from a time before Applicant's date of filing. However, this (photorealistic) image rendering was normally done in supercomputers which **locally** received complete parameterization of the (3D) image space and the (generally 3D) objects within the space. Applicant's invention is (1) to generate these photorealistic images remotely on a network and **within a generally more powerful, even supercomputer, computer resource** of a server (2) in which, and by which, and at which server (a) selection of the image components (the scene, and the room, and the furnishings) and (b) parameterization of the desired view perspective (the camera position, and angle), has been (3) **received from a remote client computer**. Then, further, (4) the photorealistic image so generated is sent upon the network to the client computer, where it is displayed.

This claimed partitionment of function - which was within the issued patent and which is still within the claims of the

present application -- is neither taught nor suggested by the reference art of Smith in combination with the reference art of Technicon nor any other of the art of reference.

3. Summary

The present amendment and remarks have overcome and discussed each of the bases for the rejections presented in the Office Action. No new subject matter has been introduced by the present amendment.

In consideration of the preceding amendment and accompanying remarks, the present amendment is deemed worthy of entrance, and the present application is deemed in condition for allowance. The timely action of the Examiner to that end is earnestly solicited.

Applicant's undersigned attorney is at the Examiner's disposal should the Examiner wish to discuss any matter which might expedite prosecution of this case.

Sincerely yours,

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[X] Attorney of Record
[ ] Filed Under 37 CFR §1.34(a)

CERTIFICATE OF MAILING

I hereby certify that this AMENDMENT and the documents referred to as attached therein are being deposited with the United States Postal Service as first class mail postage prepaid addressed to: Box AFTER FINAL, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date written below.

August 28, 2005	William C. Fuess	William C. Fuess
Date	Typed Name of Person Mailing Correspondence	Signature of Person Mailing Correspondence

CLAIMS (IN AMENDED FORM)

What is claimed is:

1. (Canceled)

2. (Canceled)

3. (Canceled)

4. (Canceled)

5. (Canceled)

6. (Canceled)

7. (Canceled)

8. (Canceled)

9. (Canceled)

10. (Canceled)

11. (Canceled)

12. (Canceled)

13. (Canceled)

14. (Canceled)

15. (Canceled)

16. (Canceled)

17. (Canceled)

18. (Canceled)

19. (Canceled)

20. (Currently Amended) A computerized method of generating and rendering over a digital communications network a high-quality perspective view image of an object that can exist in the real world located within, surrounding, or in front of, a three-dimensional scene that can also exist in the real world, the method of presenting a perspective view image of an object in a 3D scene comprising:

producing or selecting at a first computer upon a digital communications network

(1a) a 3D model of the background, ~~or, equivalently,~~ (1b) precursors of the 3D background model, or~~, equivalently,~~ (1c) one or more related 2D views of the background scene suitable to serve as precursors of the 3D background model,

(2) for (1b) and (1c) associated dimensional information of the particular 3D scene, and

(3) a suitably-real-world object positioned and oriented in the background scene; and

for which companion low-quality stand-in 3D models are derived or selected for use in rendering a preview image at the first computer;

using scene editing software on the first computer to place the object in the scene, while rapidly rendering the scene at the first computer using the companion low quality stand-ins to guide the placement, a preview quality perspective view image of the object positioned and oriented in the background scene from the desired viewing angle and camera position for use in allowing a rapid, iterative evaluation and modification of the

scene, until the desired perspective view of the scene is obtained, and then (in order to obtain a high-quality perspective view image of the scene);

transmitting from the first computer upon the digital communications network the information (1)-(2) and the identity of the selected object and its location, orientation and other parameters;

receiving at another, second, computer upon the digital communications network the background scene information and object identity and parameters;

deriving in the second computer if not transmitted from the first computer (4) a high-quality 3D background model of the represented and selected 3D background scene; and

utilizing in the second computer the (1)-(2) background scene information and the identified high-quality object and its parameters and any (4) derived high-quality 3D background scene model to generate and render in consideration of (5) a camera position and orientation, (6) a perspective view image of the selected object in the 3D scene; and then

transmitting from the second computer upon the digital communications network the (6) perspective view image; and

receiving at the first computer upon the digital communications network this (6) perspective view image; and

displaying at the first computer this (6) perspective view image;

wherein the object, having an associated geometry, is rendered with specified parameters in proper (1) scale, (2) position and (3) rotation within the perspective view image;

wherein the entire computer-generated perspective view image is rendered and viewed with the same proper perspective that a conventional photo of the same scene would exhibit, if captured by a camera; and

wherein object selection, parameterization, placement and orientation in the scene made interactively over a digital network supports the generation of a perspective view image having proper parameterization and perspective showing an object located and oriented within a 3D scene.

21. (Previously Added) The computerized method of generating and rendering a high-quality perspective view image according to claim 20

wherein the iterations are further for illuminating the object in the scene so as to develop lighting parameters;

wherein the communicating is also of the lighting parameters; and

wherein the rendering of the second, high-quality perspective view image of the 3D object located and oriented in the 3D scene is further in consideration of the developed lighting parameters.

22. (Previously Added) The computerized method of generating and rendering a high quality perspective view image according to

claim 20

wherein the iteration is further for specifying quality parameters of the object in the scene;

wherein the communicating is also of the quality parameters; and

wherein the rendering of the second, high-quality perspective view image of the object located and oriented in the scene is further in consideration of the specified quality parameters.

23. (Previously Added) A computerized method of generating and rendering over a digital communications network a high-quality perspective view image of

a three-dimensional (3D) object that can exist in the real world located within, surrounding, or in front of,

a 3D scene that can also exist in the real world,

the method of presenting a 3D perspective image of a 3D object in a 3D scene comprising:

rendering at a first computer, communicative upon a digital communications network, a first, low-quality, perspective view image of a 3D object in a 3D scene from

(1) a low quality 3D model of the suitably-real-world object,

(2) a relatively low quality 3D model of a selected suitably-real-world scene,

in consideration of

(3) a selected 3D coordinate position and angular orientation of the 3D object in the 3D scene,

(4) location and orientation of a camera view onto the scene,

(5) scene and object size;

(6) parameter of the scene lighting, and

(7) parameters of quality of any one or both of the object and of the scene;

wherein this first, low-quality, perspective view image simply shows the 3D object located and oriented in the 3D scene;

communicating from the first computer upon the digital communications network the information (1)-(7) to a second computer;

from information (1), selecting in the second computer (1a) a high-quality 3D model of the selected suitably-real-world object, and from information (2), receiving at, selecting, or generating in the second computer (2a) a high-quality 3D model of the selected suitably-real-world scene;

rendering at the second computer a second, high-quality, perspective view image from (1) the high-quality 3D model of the selected object, or derivatives or extensions of this model, and (2a) the high-quality 3D model of the scene, or derivatives or extensions of this model, in consideration of at least the information (3)-(7);

wherein the second, high-quality, perspective view image is a high-quality image of the 3D object in the 3D scene;

communicating from the second computer upon the digital communications network to the first computer the second, high-quality 3D perspective view image; and

displaying at the first computer this second, high-quality, perspective view image.

24. (Previously Added) The method according to claim 23

exercised to the purpose that a prospective purchaser of the suitably-real-world 3D object may be rendered the second, high-quality perspective view image of an object that is a virtual object;

wherein should the virtual object be made real in the world, then it would not merely suitably exist within the suitably-real-world 3D scene, but would suitably so exist as depicted in the second, perspective view image.

25. (Previously Added) The method according to claim 23

wherein the rendering at a first computer of the first, low-quality, perspective view image is from (1) a low-quality 3D model of a scene derived at the first computer.

26. (Previously Added) The method according to claim 23 wherein the rendering at a first computer of the first, low-quality, perspective view image is from (1) a low-quality 3D model of the object received upon the communications network from the second computer as a model dynamically generated from specifications provided to the second computer by the first computer.

27. (Previously Added) The method according to claim 23 wherein the rendering at a first computer of the first, low-quality, perspective view image is from (1) a low-quality model of the object received upon the communications network from a third computer as a model from a pre-existing catalog of low-quality 3D object models.

28. (Previously Added) The method according to claim 23 wherein the rendering at a first computer of the first, low-quality, perspective view image is from (2) a low-quality 3D model of the scene received upon the communications network from the second or a third computer as a model dynamically generated from specifications provided to the second computer by the first computer.

29. (Previously Added) The method according to claim 23 wherein the rendering at a first computer of the first, low-quality, perspective view image is from (2) a low-quality 3D model of the scene received upon the communications network from a third computer as a model from a pre-existing catalog of low-quality 3D object models.

30. (Previously Added) The method according to claim 29 wherein the (1) low-quality 3D model of a selected suitably-real-world object received upon the communications network from the third computer is of an object for sale.

31. (Previously Added) A computerized method of generating and rendering over a digital communications network a perspective view of a three-dimensional object that can exist in the real world located within a three-dimensional space that can also exist in the real world, the method of presenting a perspective view image of a 3D object in a 3D space comprising:

using at a client computer upon a digital communications network

(1) one or more accurately-scaled 3D models representing one or more associated suitably-real-world 3D objects, and

(2) an accurately-scaled model of a 3D scene in which 3D scene the suitably-real-world 3D objects can exist,

(3) associated scene camera and lighting parameters,

(4) associated placement and rotational information regarding where and at what positional attitude the one or more 3D objects are placed within the 3D scene;

transmitting from the first computer upon the digital communications network the information (1)-(4);

receiving at another, second, computer upon the digital communications network the information (1)-(4);

in the second computer

in accordance with at least the information (1) selecting or generating (1a) a detailed, high-quality, model of the one or more 3D objects.

in accordance with at least the information (2) selecting or generating (2a) a detailed, high-quality, model of the 3D scene, and

in accordance with the (1a) and (2a) models, and information (3)-(4) and extensions thereof,
a high-quality perspective view image of the one or more 3D objects properly scaled, located and oriented within the 3D scene; and then

transmitting from the second computer upon the digital communications network this high-quality perspective view image; and

receiving at the first computer upon the digital communications network this high-quality perspective view image; and

displaying at the first computer this high-quality perspective view image.

32. (Previously Added) The method according to claim 31

exercised to the purpose that a prospective purchaser of one or more of the one or more suitably-real-world objects may be rendered the high-quality perspective view image where at least one of the one or more 3D objects is a virtual object not existing in the world, and which might only suitably exist within the suitably-real-world 3D scene;

wherein even though at least one 3D object shown in the high-quality perspective view is virtual and does not actually exist, the 3D object both (i) could exist, and (ii) could exist as so shown within the high-quality perspective view.

33. (Previously Added) A computerized method of producing a high quality perspective view image on and between at least two computers communicating over a digital communications network, the method comprising:

providing from a server computer across a digital communications network to a client computer (i) a catalog of small, low-quality, 3D graphics models of objects and (ii) at least one 3D graphics model of a scene in which the objects may exist;

selecting at the client computer one or more objects and at least one scene;

communicating these selections from the client computer across the communications network to the server computer;

responsively to receipt of the selections, providing from the server computer across the communications network to the client computer a set of at least the associated small, low-quality 3D models;

manually manipulating at the client computer spatial (i)

positions and orientations of a selected one or more object models from the set of models (ii) within the at least one scene model, and rendering at the client computer from these object and scene models, a first, low-quality perspective view image of the one or more selected objects in the at least one scene, this low-quality perspective view image being used as a preview;

communicating, from the client computer across the communications network to the sever computer, at least camera, lighting and image size parameters, and positional placements and orientations of each of the selected and manipulated one or more objects in the at least one scene;

from the received positional placements and orientations of the selected one or more objects, rendering in the server computer from associated large high-quality 3D models of the selected one or more objects and of the at least one scene, a 3D high-quality perspective view image of the selected one or more objects located and oriented in the scene;

communicating from the sever computer upon the digital communications network to the client computer the rendered high-quality perspective view image; and

displaying at the client computer this rendered high-quality perspective view image.

34. (Previously Added) The computerized method of producing a high-quality image according to claim 33

wherein the rendered high-quality perspective view image is suitable to serve as advertising copy, meaning in particular that it is devoid of clearly visible defects;

wherein a 3D graphic artist of this rendered high-quality perspective view image who performs selections and manipulations at the client computer need not have to attend to, and did not actually attend to, the building of the 3D models and any textures, which building transpired elsewhere.

35. (Previously Added) The computerized method of producing a high quality rendered image according to claim 34

wherein the building of the 3D models and any textures transpired in a model-building computer.

36. (Previously Added) The computerized method of producing a high quality rendered image according to claim 34

wherein the rendered high-quality perspective view image is suitable to serve as advertising copy, meaning in particular that it is devoid of clearly visible defects;

wherein a 3D graphic artist of this rendered high-quality perspective view image who performs selections and manipulations at the client computer need not have to attend to, and did not actually attend to, the rendering, which transpired in the server computer.

37. (Previously Added) A method of rendering at high quality a perspective view image as a business service on a digital communications network, the high-quality perspective view image rendering business service comprising:

providing from a server computer across the digital communications network to a client computer

any of (i) a catalog of small, low-quality, 3D graphics models, or (ii) a tool for generating small, low-quality, 3D graphics models, or (iii) an actual, small, low-quality, 3D graphics model

of at least (1) objects and (2) scenes in which the objects may exist;

receiving at the server computer upon the digital communications network from the client computer information as to the identities of at least one object and at least one scene selected from the catalog, and further information as to the camera and lighting parameters and image size and where and at what orientations selected identified objects are to be placed and oriented in the selected scene;

responsively to received information and further information, rendering in the server computer from associated high-quality 3D models of each selected object and also of the

identified scene, a high-quality perspective view image of each selected object located and oriented in the identified scene; and

communicating from the sever computer upon the digital communications network to the client computer this rendered high-quality perspective view image;

wherein the client computer is provided with a rendered high-quality perspective view image without necessity of either (i) having the high-quality models from which this high-quality perspective view image is rendered, or (ii) rendering this high-quality perspective view image itself.

38. (Previously Added) A method performed by (i) a relatively simple client computer running relatively simple software (ii) connected upon a digital communications network to (iii) a relatively powerful graphics server computer running relatively sophisticated graphics image rendering software and/or hardware, of deriving at the client computer a high-quality perspective view image as is a typical product of the graphics server computer and beyond the capabilities of the client computer and hardware and software operating therein, at least within a reasonable period of time, the method by which a networked client computer may bootstrap itself to production of a high quality perspective view image comprising:

receiving in the client computer from the graphics server computer across the digital communications network a catalog of, or tool for generating low-quality 3D graphics models for selected (1) objects and (2) scenes in which the objects may exist;

selecting at the client computer objects and at least one scene from the catalog and downloading the selected objects and/or scene from the graphics server computer across the communications network, or, alternatively as the case may be, generating with the tool object and/or scene models;

manipulating at the client computer the received and/or generated low-quality models to specify spatial positions and

orientations of objects within a scene;

communicating these object positional placements and orientations, and also camera, lighting and image size parameters, across the communications network to the graphics server computer;

receiving back from the graphics server computer upon the digital communications network a high-quality perspective view image of the objects placed, oriented, illuminated and viewed from a perspective, as were all derived from the manipulating, and as were communicated to the graphics server computer;

displaying at the client computer this rendered high-quality perspective view image.

39. (Previously Added) A computerized method of generating and rendering over a digital communications network a high-quality perspective view image of an object that can exist in the real world located within, surrounding, or in front of, a three-dimensional scene that can also exist in the real world, the method of presenting a perspective view image of an object in a 3D scene comprising:

producing at a first computer running a 3D scene editor, Digital Content Creation, Computer Aided Design, or browser program with or without a plug-in a 3D scene file;

transmitting from the first computer upon the digital communications network the scene file;

receiving at another, second, powerful graphics computer upon the digital communications network the scene file; and

utilizing in the second computer the scene file to generate and render in consideration of (5) a camera position and orientation specified in the scene file, (6) a perspective view image of the selected object in the 3D scene; and then

transmitting from the second computer upon the digital communications network the (6) perspective view image; and

receiving at the first computer upon the digital communications network this (6) perspective view image; and

displaying at the first computer this (6) perspective view image;

wherein the object, having an associated geometry, is rendered in proper (1) scale, (2) position and (3) rotation within the perspective view image;

wherein the entire computer-generated perspective view image is rendered and viewed with the same proper perspective that a conventional photo of the same scene would exhibit, if captured by a camera; and

wherein the scene specification, made interactively over a digital communications network, supports the relatively rapid ray-traced rendering of a perspective view image having proper perspective, showing an object located and oriented within a 3D scene.

40. (Previously Added) A computerized method of generating and rendering over a digital communications network a high-quality perspective view image of an object that can exist in the real world located within, surrounding, or in front of, a three-dimensional scene that can also exist in the real world, the method of presenting a perspective view image of an object in a 3D scene comprising:

producing at a first computer running a 3D scene editor, Digital Content Creation, Computer Aided Design, or browser program with or without a plug-in a 3D scene file containing references to 3D objects on the second computer;

transmitting from the first computer upon the digital communications network the scene file;

receiving at another, second, powerful graphics computer upon the digital communications network the scene file; and

utilizing in the second computer the scene file to generate and render in consideration of (5) a camera position and orientation specified in the scene file, (6) a perspective view image of the selected object in the 3D scene; and then

transmitting from the second computer upon the digital communications network the (6) perspective view image; and

receiving at the first computer upon the digital communications network this (6) perspective view image; and

displaying at the first computer this (6) perspective view image;

wherein the object, having an associated geometry, is rendered in proper (1) scale, (2) position and (3) rotation within the perspective view image;

wherein the entire computer-generated perspective view image is rendered and viewed with the same proper perspective that a conventional photo of the same scene would exhibit, if captured by a camera; and

wherein the scene specification, made interactively over a digital communications network, supports the relatively rapid ray-traced rendering of a perspective view image having proper perspective, showing an object located and oriented within a 3D scene.

41. (Previously Added) The computerized method of generating and rendering a high- quality perspective view image according to claim 40

wherein the iterations are further for texturing the object in the scene so as to develop texture parameters;

wherein the communicating is also of the texture parameters; and

wherein the rendering of the second, high-quality perspective view image of the 3D object located and oriented in the 3D scene is further in consideration of the developed texture parameters.

CLAIMS (IN PLAIN TEXT FORM)

What is claimed is:

1. (Canceled)

2. (Canceled)

3. (Canceled)

4. (Canceled)

5. (Canceled)

6. (Canceled)

7. (Canceled)

8. (Canceled)

9. (Canceled)

10. (Canceled)

11. (Canceled)

12. (Canceled)

13. (Canceled)

14. (Canceled)

15. (Canceled)

16. (Canceled)

17. (Canceled)

18. (Canceled)

19. (Canceled)

20. (Currently Amended) A computerized method of generating and rendering over a digital communications network a high-quality perspective view image of an object that can exist in the real world located within, surrounding, or in front of, a three-dimensional scene that can also exist in the real world, the method of presenting a perspective view image of an object in a 3D scene comprising:

producing or selecting at a first computer upon a digital communications network

(1a) a 3D model of the background, (1b) precursors of the 3D background model, or (1c) one or more related 2D views of the background scene suitable to serve as precursors of the 3D background model,

(2) for (1b) and (1c) associated dimensional information of the particular 3D scene, and

(3) a suitably-real-world object positioned and oriented in the background scene; and

for which companion low-quality stand-in 3D models are derived or selected for use in rendering a preview image at the first computer;

using scene editing software on the first computer to place the object in the scene, while rapidly rendering the scene at the first computer using the companion low quality stand-ins to guide the placement, a preview quality perspective view image of the object positioned and oriented in the background scene from the desired viewing angle and camera position for use in allowing a rapid, iterative evaluation and modification of the

scene, until the desired perspective view of the scene is obtained, and then (in order to obtain a high-quality perspective view image of the scene);

transmitting from the first computer upon the digital communications network the information (1)-(2) and the identity of the selected object and its location, orientation and other parameters;

receiving at another, second, computer upon the digital communications network the background scene information and object identity and parameters;

deriving in the second computer if not transmitted from the first computer (4) a high-quality 3D background model of the represented and selected 3D background scene; and

utilizing in the second computer the (1)-(2) background scene information and the identified high-quality object and its parameters and any (4) derived high-quality 3D background scene model to generate and render in consideration of (5) a camera position and orientation, (6) a perspective view image of the selected object in the 3D scene; and then

transmitting from the second computer upon the digital communications network the (6) perspective view image; and

receiving at the first computer upon the digital communications network this (6) perspective view image; and

displaying at the first computer this (6) perspective view image;

wherein the object, having an associated geometry, is rendered with specified parameters in proper (1) scale, (2) position and (3) rotation within the perspective view image;

wherein the entire computer-generated perspective view image is rendered and viewed with the same proper perspective that a conventional photo of the same scene would exhibit, if captured by a camera; and

wherein object selection, parameterization, placement and orientation in the scene made interactively over a digital network supports the generation of a perspective view image having proper parameterization and perspective showing an object located and oriented within a 3D scene.

21. (Previously Added) The computerized method of generating and rendering a high-quality perspective view image according to claim 20

wherein the iterations are further for illuminating the object in the scene so as to develop lighting parameters;

wherein the communicating is also of the lighting parameters; and

wherein the rendering of the second, high-quality perspective view image of the 3D object located and oriented in the 3D scene is further in consideration of the developed lighting parameters.

22. (Previously Added) The computerized method of generating and rendering a high quality perspective view image according to

claim 20

wherein the iteration is further for specifying quality parameters of the object in the scene;

wherein the communicating is also of the quality parameters; and

wherein the rendering of the second, high-quality perspective view image of the object located and oriented in the scene is further in consideration of the specified quality parameters.

23. (Previously Added) A computerized method of generating and rendering over a digital communications network a high-quality perspective view image of

a three-dimensional (3D) object that can exist in the real world located within, surrounding, or in front of,

a 3D scene that can also exist in the real world,

the method of presenting a 3D perspective image of a 3D object in a 3D scene comprising:

rendering at a first computer, communicative upon a digital communications network, a first, low-quality, perspective view image of a 3D object in a 3D scene from

(1) a low quality 3D model of the suitably-real-world object,

(2) a relatively low quality 3D model of a selected suitably-real-world scene,

in consideration of

(3) a selected 3D coordinate position and angular orientation of the 3D object in the 3D scene,

(4) location and orientation of a camera view onto the scene,

(5) scene and object size;

(6) parameter of the scene lighting, and

(7) parameters of quality of any one or both of the object and of the scene;

wherein this first, low-quality, perspective view image simply shows the 3D object located and oriented in the 3D scene;

communicating from the first computer upon the digital communications network the information (1)-(7) to a second computer;

from information (1), selecting in the second computer (1a) a high-quality 3D model of the selected suitably-real-world object, and from information (2), receiving at, selecting, or generating in the second computer (2a) a high-quality 3D model of the selected suitably-real-world scene;

rendering at the second computer a second, high-quality, perspective view image from (1) the high-quality 3D model of the selected object, or derivatives or extensions of this model, and (2a) the high-quality 3D model of the scene, or derivatives or extensions of this model, in consideration of at least the information (3)-(7);

wherein the second, high-quality, perspective view image is a high-quality image of the 3D object in the 3D scene;

communicating from the second computer upon the digital communications network to the first computer the second, high-quality 3D perspective view image; and

displaying at the first computer this second, high-quality, perspective view image.

24. (Previously Added) The method according to claim 23

exercised to the purpose that a prospective purchaser of the suitably-real-world 3D object may be rendered the second, high-quality perspective view image of an object that is a virtual object;

wherein should the virtual object be made real in the world, then it would not merely suitably exist within the suitably-real-world 3D scene, but would suitably so exist as depicted in the second, perspective view image.

25. (Previously Added) The method according to claim 23

wherein the rendering at a first computer of the first, low-quality, perspective view image is from (1) a low-quality 3D model of a scene derived at the first computer.

26. (Previously Added) The method according to claim 23 wherein the rendering at a first computer of the first, low-quality, perspective view image is from (1) a low-quality 3D model of the object received upon the communications network from the second computer as a model dynamically generated from specifications provided to the second computer by the first computer.

27. (Previously Added) The method according to claim 23 wherein the rendering at a first computer of the first, low-quality, perspective view image is from (1) a low-quality model of the object received upon the communications network from a third computer as a model from a pre-existing catalog of low-quality 3D object models.

28. (Previously Added) The method according to claim 23 wherein the rendering at a first computer of the first, low-quality, perspective view image is from (2) a low-quality 3D model of the scene received upon the communications network from the second or a third computer as a model dynamically generated from specifications provided to the second computer by the first computer.

29. (Previously Added) The method according to claim 23 wherein the rendering at a first computer of the first, low-quality, perspective view image is from (2) a low-quality 3D model of the scene received upon the communications network from a third computer as a model from a pre-existing catalog of low-quality 3D object models.

30. (Previously Added) The method according to claim 29 wherein the (1) low-quality 3D model of a selected suitably-real-world object received upon the communications network from the third computer is of an object for sale.

31. (Previously Added) A computerized method of generating and rendering over a digital communications network a perspective view of a three-dimensional object that can exist in the real world located within a three-dimensional space that can also exist in the real world, the method of presenting a perspective view image of a 3D object in a 3D space comprising:

using at a client computer upon a digital communications network

(1) one or more accurately-scaled 3D models representing one or more associated suitably-real-world 3D objects, and

(2) an accurately-scaled model of a 3D scene in which 3D scene the suitably-real-world 3D objects can exist,

(3) associated scene camera and lighting parameters,

(4) associated placement and rotational information regarding where and at what positional attitude the one or more 3D objects are placed within the 3D scene;

transmitting from the first computer upon the digital communications network the information (1)-(4);

receiving at another, second, computer upon the digital communications network the information (1)-(4);

in the second computer

in accordance with at least the information (1) selecting or generating (1a) a detailed, high-quality, model of the one or more 3D objects.

in accordance with at least the information (2) selecting or generating (2a) a detailed, high-quality, model of the 3D scene, and

in accordance with the (1a) and (2a) models, and information (3)-(4) and extensions thereof,
a high-quality perspective view image of the one or more 3D objects properly scaled, located and oriented within the 3D scene; and then

transmitting from the second computer upon the digital communications network this high-quality perspective view image; and

receiving at the first computer upon the digital communications network this high-quality perspective view image; and

displaying at the first computer this high-quality perspective view image.

32. (Previously Added) The method according to claim 31

exercised to the purpose that a prospective purchaser of one or more of the one or more suitably-real-world objects may be rendered the high-quality perspective view image where at least one of the one or more 3D objects is a virtual object not existing in the world, and which might only suitably exist within the suitably-real-world 3D scene;

wherein even though at least one 3D object shown in the high-quality perspective view is virtual and does not actually exist, the 3D object both (i) could exist, and (ii) could exist as so shown within the high-quality perspective view.

33. (Previously Added) A computerized method of producing a high quality perspective view image on and between at least two computers communicating over a digital communications network, the method comprising:

providing from a server computer across a digital communications network to a client computer (i) a catalog of small, low-quality, 3D graphics models of objects and (ii) at least one 3D graphics model of a scene in which the objects may exist;

selecting at the client computer one or more objects and at least one scene;

communicating these selections from the client computer across the communications network to the server computer;

responsively to receipt of the selections, providing from the server computer across the communications network to the client computer a set of at least the associated small, low-quality 3D models;

manually manipulating at the client computer spatial (i)

positions and orientations of a selected one or more object models from the set of models (ii) within the at least one scene model, and rendering at the client computer from these object and scene models, a first, low-quality perspective view image of the one or more selected objects in the at least one scene, this low-quality perspective view image being used as a preview;

communicating, from the client computer across the communications network to the sever computer, at least camera, lighting and image size parameters, and positional placements and orientations of each of the selected and manipulated one or more objects in the at least one scene;

from the received positional placements and orientations of the selected one or more objects, rendering in the server computer from associated large high-quality 3D models of the selected one or more objects and of the at least one scene, a 3D high-quality perspective view image of the selected one or more objects located and oriented in the scene;

communicating from the sever computer upon the digital communications network to the client computer the rendered high-quality perspective view image; and

displaying at the client computer this rendered high-quality perspective view image.

34. (Previously Added) The computerized method of producing a high-quality image according to claim 33

wherein the rendered high-quality perspective view image is suitable to serve as advertising copy, meaning in particular that it is devoid of clearly visible defects;

wherein a 3D graphic artist of this rendered high-quality perspective view image who performs selections and manipulations at the client computer need not have to attend to, and did not actually attend to, the building of the 3D models and any textures, which building transpired elsewhere.

35. (Previously Added) The computerized method of producing a high quality rendered image according to claim 34

wherein the building of the 3D models and any textures transpired in a model-building computer.

36. (Previously Added) The computerized method of producing a high quality rendered image according to claim 34

wherein the rendered high-quality perspective view image is suitable to serve as advertising copy, meaning in particular that it is devoid of clearly visible defects;

wherein a 3D graphic artist of this rendered high-quality perspective view image who performs selections and manipulations at the client computer need not have to attend to, and did not actually attend to, the rendering, which transpired in the server computer.

37. (Previously Added) A method of rendering at high quality a perspective view image as a business service on a digital communications network, the high-quality perspective view image rendering business service comprising:

providing from a server computer across the digital communications network to a client computer

any of (i) a catalog of small, low-quality, 3D graphics models, or (ii) a tool for generating small, low-quality, 3D graphics models, or (iii) an actual, small, low-quality, 3D graphics model

of at least (1) objects and (2) scenes in which the objects may exist;

receiving at the server computer upon the digital communications network from the client computer information as to the identities of at least one object and at least one scene selected from the catalog, and further information as to the camera and lighting parameters and image size and where and at what orientations selected identified objects are to be placed and oriented in the selected scene;

responsively to received information and further information, rendering in the server computer from associated high-quality 3D models of each selected object and also of the

identified scene, a high-quality perspective view image of each selected object located and oriented in the identified scene; and

communicating from the sever computer upon the digital communications network to the client computer this rendered high-quality perspective view image;

wherein the client computer is provided with a rendered high-quality perspective view image without necessity of either (i) having the high-quality models from which this high-quality perspective view image is rendered, or (ii) rendering this high-quality perspective view image itself.

38. (Previously Added) A method performed by (i) a relatively simple client computer running relatively simple software (ii) connected upon a digital communications network to (iii) a relatively powerful graphics server computer running relatively sophisticated graphics image rendering software and/or hardware, of deriving at the client computer a high-quality perspective view image as is a typical product of the graphics server computer and beyond the capabilities of the client computer and hardware and software operating therein, at least within a reasonable period of time, the method by which a networked client computer may bootstrap itself to production of a high quality perspective view image comprising:

receiving in the client computer from the graphics server computer across the digital communications network a catalog of, or tool for generating low-quality 3D graphics models for selected (1) objects and (2) scenes in which the objects may exist;

selecting at the client computer objects and at least one scene from the catalog and downloading the selected objects and/or scene from the graphics server computer across the communications network, or, alternatively as the case may be, generating with the tool object and/or scene models;

manipulating at the client computer the received and/or generated low-quality models to specify spatial positions and

orientations of objects within a scene;

communicating these object positional placements and orientations, and also camera, lighting and image size parameters, across the communications network to the graphics server computer;

receiving back from the graphics server computer upon the digital communications network a high-quality perspective view image of the objects placed, oriented, illuminated and viewed from a perspective, as were all derived from the manipulating, and as were communicated to the graphics server computer;

displaying at the client computer this rendered high-quality perspective view image.

39. (Previously Added) A computerized method of generating and rendering over a digital communications network a high-quality perspective view image of an object that can exist in the real world located within, surrounding, or in front of, a three-dimensional scene that can also exist in the real world, the method of presenting a perspective view image of an object in a 3D scene comprising:

producing at a first computer running a 3D scene editor, Digital Content Creation, Computer Aided Design, or browser program with or without a plug-in a 3D scene file;

transmitting from the first computer upon the digital communications network the scene file;

receiving at another, second, powerful graphics computer upon the digital communications network the scene file; and

utilizing in the second computer the scene file to generate and render in consideration of (5) a camera position and orientation specified in the scene file, (6) a perspective view image of the selected object in the 3D scene; and then

transmitting from the second computer upon the digital communications network the (6) perspective view image; and

receiving at the first computer upon the digital communications network this (6) perspective view image; and

displaying at the first computer this (6) perspective view image;

wherein the object, having an associated geometry, is rendered in proper (1) scale, (2) position and (3) rotation within the perspective view image;

wherein the entire computer-generated perspective view image is rendered and viewed with the same proper perspective that a conventional photo of the same scene would exhibit, if captured by a camera; and

wherein the scene specification, made interactively over a digital communications network, supports the relatively rapid ray-traced rendering of a perspective view image having proper perspective, showing an object located and oriented within a 3D scene.

40. (Previously Added) A computerized method of generating and rendering over a digital communications network a high-quality perspective view image of an object that can exist in the real world located within, surrounding, or in front of, a three-dimensional scene that can also exist in the real world, the method of presenting a perspective view image of an object in a 3D scene comprising:

producing at a first computer running a 3D scene editor, Digital Content Creation, Computer Aided Design, or browser program with or without a plug-in a 3D scene file containing references to 3D objects on the second computer;

transmitting from the first computer upon the digital communications network the scene file;

receiving at another, second, powerful graphics computer upon the digital communications network the scene file; and

utilizing in the second computer the scene file to generate and render in consideration of (5) a camera position and orientation specified in the scene file, (6) a perspective view image of the selected object in the 3D scene; and then

transmitting from the second computer upon the digital communications network the (6) perspective view image; and

receiving at the first computer upon the digital communications network this (6) perspective view image; and

displaying at the first computer this (6) perspective view image;

wherein the object, having an associated geometry, is rendered in proper (1) scale, (2) position and (3) rotation within the perspective view image;

wherein the entire computer-generated perspective view image is rendered and viewed with the same proper perspective that a conventional photo of the same scene would exhibit, if captured by a camera; and

wherein the scene specification, made interactively over a digital communications network, supports the relatively rapid ray-traced rendering of a perspective view image having proper perspective, showing an object located and oriented within a 3D scene.

41. (Previously Added) The computerized method of generating and rendering a high- quality perspective view image according to claim 40

wherein the iterations are further for texturing the object in the scene so as to develop texture parameters;

wherein the communicating is also of the texture parameters; and

wherein the rendering of the second, high-quality perspective view image of the 3D object located and oriented in the 3D scene is further in consideration of the developed texture parameters.